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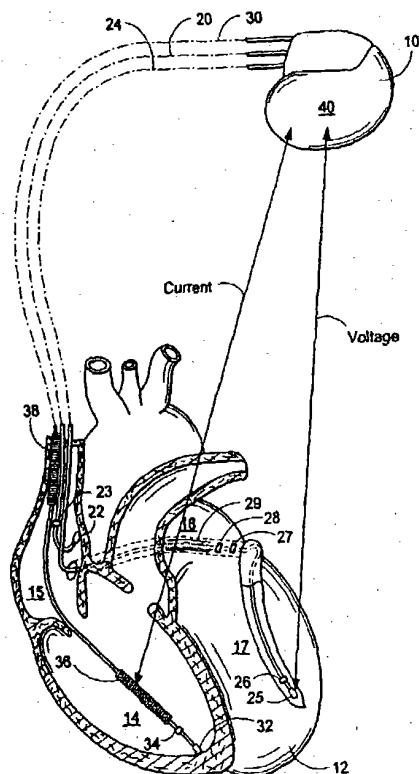
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[Continued on next page]

(54) Title: CARDIAC STIMULATION DEVICES AND METHODS FOR MEASURING IMPEDANCES ASSOCIATED WITH THE LEFT SIDE OF THE HEART



(57) Abstract: Methods of and systems for measuring at least one physiological parameter for assessing a patient's cardiac condition based on left heart impedance measurements are described. Various embodiments establish a current flow through a left side of the heart and measure a voltage between a first location on or in the left side of the heart and a second location within the human body while establishing the current flow. The inventive techniques and systems can be used for, among other things, measuring progression or regression of myocardial failure, dilation, or hypertrophy, pulmonary congestion, myocardial contractility, or ejection fraction. The measured voltage, related to left heart impedance, can be used to monitor patient condition for diagnostic purposes or to adapt pacing or defibrillation therapy. Therapy adaptation can include controlling pacing modes, pacing rates, or interchamber pacing delays, for example.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

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X	WO 99 30777 A (ROOS CUBUS DE ;BAKELS ARNOLDUS (NL); LEINDERS ROBERT (NL); MEDTRONIC) 24 June 1999 (1999-06-24) the whole document	1-7, 11-23, 29, 33-39, 58,66
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☒ Further documents are listed in the continuation of box C

☒ Patent family members are listed in annex.

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T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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